

Executive Summary

The Public Service Commission has prepared this publication that includes two reports:

The sixth biennial report to the Legislature is required under Wis. Stat. § 196.196(5)(f). The report contains updated information and reviews new services and technologies related to the deployment of and investment in telecommunications infrastructure throughout the state. This report also comments on the use of advanced telecommunications infrastructure for distance learning, libraries and access to health care. A new section has been added that outlines Wireless E911 grant activities.

The Universal Service Fund (USF) report (Part 5 herein) is being filed in compliance with Wis. Stat. § 196.218(5r) and contains information on programs funded by the state Universal Service Fund. A brief description of the federal USF is also included.

The appendix of the report contains appendices A-D that provide maps, information on the infrastructure report preparation, details on USF grants and alternative regulation plans. Appendix A contains Geographic Information Systems (GIS) maps that show the geographic location of various infrastructure elements and services in the state, along with USF grant recipient locations.

Since 1994, when the legislation passed that created these reporting requirements, the industry has changed on many fronts. Consequently, some issues have arisen that alter the concerns about infrastructure or universal service that existed in 1994. In this report, the Commission notes these changes and identifies concerns that should be considered as the industry further evolves.

Advanced Infrastructure for Designated Purposes

Wis. Stat. § 196.196(5)(f)1.a.-d. requires reporting on the use of infrastructure for distance learning, interconnection to libraries, access to health care, assistance to persons with disabilities and ISDN. Based on the tracking of these items for the last 10 years, since 1993 Wisconsin Act 496 (Act 496) was passed, it is clear that telecommunications has served to greatly improve these areas. The Commission believes that the evidence suggests that the telecommunications network is no longer a significant limiting factor for the improvement of distance learning, interconnection of libraries, access to health care and services to persons with disabilities. Although there are some areas of the state where broadband for these purposes is still limited, the most significant limiting factors are the ability of customers to pay for services, the ability of advanced service providers to recover costs for providing service and the development of equipment that will allow individuals in the home to use the telecommunications infrastructure.

Trends outlined in earlier reports on the use of advanced telecommunications services are ongoing and the general conclusions remain valid. The Internet has become the medium of choice for distance education programs for higher education so there is less reliance on dedicated high-speed networks. Nearly all libraries have access to the Internet and growth continues in the number of libraries with high-speed dedicated access. In health care, there is an increased use of existing high-capacity networks between hospitals and clinics, but the growth in dedicated networks remain slow.

Studies that track the use of telemedicine have not mentioned that the telecommunications infrastructure is a problem. Instead, they continue to mention factors related to cost and slow adoption, licensing and lack of standards.

For individuals with disabilities, the focus remains on the development of assistive technologies that enable the more effective use of telecommunications infrastructure by improving access to computers, web pages and Internet connections.

Both incumbent providers and newer competitive companies have invested in infrastructure in Wisconsin to provide service to education and health care providers. A number of small consortiums have high-speed networks that provide some infrastructure redundancy and serve the smaller telephone companies and the state's distance education networks.

Infrastructure Deployment

Wis. Stat. § 196.196(5)(f)1.e. requires reporting on ISDN deployment and other infrastructure investments identified by the Commission. Although the statute requires reporting of deployment of ISDN, new technologies such as Digital Subscriber Line (DSL), Fiber to the Premises (FTTP), and Voice over Internet Protocol (VoIP) are superseding ISDN deployment.¹ The status of deployment of switching, outside plant and advanced services are outlined for Incumbent Local Exchange Carriers (ILECs) and Competitive Local Exchange Carriers (CLECs) who are required to report to the Commission. In addition, Cable Television (CATV) providers submitted data requested by the Commission.

Wisconsin has 100 percent digital switching; most companies reported modest growth in deployment of switching functions. Packet switches on the regulated side of the network showed minimum growth. There are additional packet switches on the deregulated side of the network used for traffic to the outside world and for Internet traffic; these are not required to be reported to the Commission.

¹ The Commission recommends the specific reference to ISDN in Wis. Stat. § 196.196(5)(f)1.e. be replaced with a more generic reference to technologies.

Fiber optic facilities that are included in the outside plant statistics continued to grow with new fiber being added for inter-office circuits, fiber in the feeder, fiber in the loop and fiber to the premises. The majority of companies have 95 to 100 percent of all interoffice facilities on fiber optic lines.

Deployment of advanced services, including ISDN and DSL technology, which offers high-speed connections over copper lines, continues to expand. A number of ILECs across the state offer DSL to 100 percent of all customers within their service area.

There were 151 CLECs certified to provide service at year-end 2004, although less than half of these companies were actively providing service. CLEC services range from local service to high-speed Internet to dark fiber. A number of companies reported having their own facilities in place. Several local municipalities have also been certified as competitive telecommunications providers, and those that are actively providing service offer varied services throughout their communities.

Access line counts are declining for ILECs. Although CLEC line growth is flattening out, these companies have not seen the same line loss as the incumbent providers. Wireless, CATV and VoIP providers continue to market their services and win customers away from ILECs and CLECs.

ILECs, CLECs, and CATV providers offered broadband service throughout the state at year-end 2004. CATV providers account for the largest percentage of all broadband lines. Broadband deployment continues to grow. A number of ILEC companies make broadband service available to 100 percent of the customers within their service territory. Many broadband providers are offering tiered speed options. This gives the customers a choice of broadband speeds based on price. A number of ILECs and CLECs offer triple play; that is voice, video and data services in one package. Some are also offering FTTP to customers. CATV, wireless, and satellite providers are expanding their broadband offerings for consumers also; in many instances, the Commission does not have access to that deployment data.

Even as broadband offerings expand and consumers have more options, there is a need to assure basic consumer protections. The Commission has provided input to the FCC on this subject and will continue to monitor the issue.

VoIP technology appears to be growing across the nation as many price-conscious customers switch to VoIP-based voice service. Although no public statistics are available, anecdotal evidence indicates growth at a significant rate. The existing infrastructure, rather than be abandoned, may evolve into a backbone network to the Internet protocol-based telephones of the future. ILEC and CLEC data filed for 2004 show a small number of ILECs and CLECs offer voice services using VoIP as a network technology.

E911 Wireless Grant Program

Another enhancement and improvement of service to citizens of Wisconsin is the implementation of a wireless 911 system. Wisconsin Act 48 created the three-year grant program to be implemented by the Commission. Under the program, local government and wireless telecommunications service providers will be reimbursed for certain costs associated with establishing

an enhanced wireless 911 system. Enhanced 911 service routes a wireless 911 call over a dedicated network, independent of the public switched network and automatically reports the name and telephone number corresponding to the calling party's wireless telephone to the call-taker at the public safety answering point. Most importantly, the enhanced wireless 911 service also reports the location of the calling party by geographic grid coordinates.

Nine wireless providers and 68 Wisconsin counties requested grants from the fund. In late 2005, the Commission approved an initial monthly surcharge of 83 cents on each wireless telephone number billed in Wisconsin to collect the money that will be paid out in grants. This report provides detail on the grant amount awarded to each requesting county.

Universal Service Fund

Act 496 established the Universal Service Fund to ensure all state residents have access to essential and advanced telecommunications services. The Act also created the USF Council to advise the Commission on rules for universal service. The fund not only assists customers in areas of the state that have relatively high costs for telecommunications services, low-income customers, and customers with disabilities, it also assists in the deployment of the advanced service capabilities of a modern telecommunications infrastructure throughout the state.

Telecommunications providers contribute to the USF based on assessments on providers' gross intrastate operating revenues as reported to the Commission. Programs under the broad umbrella of the USF consist of technology and consumer-oriented programs managed by the Commission, and some technology and education-oriented programs that direct funding to other state government entities. This report focuses on the Commission portion of the USF.

Although the Commission develops the overall policy and procedures for the USF, and manages and operates several of the programs, it is required under state statute to contract with a private firm to administer the fund. The 13-member USF Council advises the Commission on the administration of the USF. Beginning in FY04, the Legislature capped the amount that telecommunications providers could be assessed for the Commission USF programs.

Nine Commission programs are currently funded by the USF. These are:

- Telecommunications Equipment Purchase Program (TEPP)
- Two-line Voice or Speech Carryover
- High Rate Ceiling Credits
- Lifeline Program
- Link-up Program
- Newline for the Blind
- Non-Profit Groups – Access Programs or Projects
- Medical Telecommunications Equipment Program
- Public Interest Payphones

Tables and charts are included in Part 5 and in Appendices A and C that summarize the expenditures and grant details for the fund.

Beyond the Commission-administered USF, there are some federal USF programs that also serve to support universal service for customers in Wisconsin.

Conclusions, Recommendations and Concerns

The information filed by incumbent and competitive providers indicates that these providers continue to invest significantly in telecommunications infrastructure in Wisconsin. Fiber deployment has increased as new technologies build on these existing systems. It remains a difficult task to document the infrastructure of all providers. Not all providers are regulated by the PSC and it would be helpful to collect data from those entities that provide communications services but do not report information to the PSC. Having these statistics would provide a more complete picture, particularly for broadband deployment in the state.

Broadband deployment shows increases from the last report although there remain some areas of the state that do not have broadband access or do not have the same access to broadband providers as others. A number of rural companies offer broadband access to 100 percent of their customers. New and projected projects using fiber and wireless technology are planned to further expand broadband service.

The Commission recommends that the specific issues noted in Wis. Stat. § 196.196(5)(f)1.a.-d., which cover reporting on distance learning, interconnection to libraries and access to health care, only be reported when there are issues about infrastructure availability for these purposes. The Commission also recommends that Wis. Stat. § 196.196(5)(f)1.e. be replaced with a more generic reference to current technology. In addition, all service areas should also be reported on a non-confidential basis.

The Commission recommends that statutory authority under Wis. Stat. § 196.25 be expanded to permit the Commission to collect data from CATV, wireless and VoIP providers so that the Legislature and the public have complete and relevant information covering all areas of the telecommunications industry.

Wis. Stat. § 196.196(5)(f):

1. Before January 1, 1996, and biennially thereafter, the commission shall submit a report to the joint committee on information policy and technology describing the status of investments in advanced telecommunications infrastructure in this state. The report shall include information on the progress made in all of the following areas:
 - a. Distance learning, including the number of schools and other educational institutions connected to distance learning networks.
 - b. Interconnection of libraries, including the number of libraries with video conferencing and network access capabilities.
 - c. Access to health care.
 - d. Education, health care and employment opportunities for the disabled and other persons in the home.
 - e. Integrated services digital network deployment.
 - f. Other infrastructure investments identified by the Commission.

The Commission also recommends changing the annual USF reporting requirement to a biennial reporting requirement. In addition, permanent statutory restrictions on assessment levels for the USF budget should be eliminated, and the USF budget levels should be determined by the state budget process.

The Commission will monitor changes within the industry on a variety of topics including broadband, USF reform and intercarrier compensation. These, and other issues, have the potential to impact Wisconsin consumers, so the Commission will monitor changes in the industry, proceedings at the FCC, or activities in Congress that could affect telecommunications policies, options, services, and prices in Wisconsin. Future reports to the legislature will include information as relevant on these matters.